TITLE

GENES ENCODING CAROTENOID COMPOUNDS

ABSTRACT OF THE DISCLOSURE

A unique carotenogenic biosynthetic gene cluster has been isolated from *Panteoa agglomerans* strain DC404, wherein the genetic organization of the cluster is *crtE-idi-crtY-crtI-crtB-crtZ*. The genes contained within this cluster encode geranylgeranyl pyrophosphate (GGPP) synthetase (CrtE), isopentenyl pyrophosphate isomerase (Idi), lycopene cyclase (CrtY), phytoene desaturase (CrtI), phytoene synthase (CrtB), and β-carotene hydroxylase (CrtZ). The gene cluster, genes and their products are useful for the conversion of farnesyl pyrophosphate to carotenoids. Vectors containing those DNA segments, host cells containing the vectors and methods for producing those enzymes by recombinant DNA technology in transformed host organisms are disclosed.

SNF/dmm